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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,716

03/18/2004

Norikazu Ieda

Q80524

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23373

7590

11/14/2007

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/802,716

**Applicant(s)**

IEDA ET AL.

**Examiner**

Kaj K. Olsen

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11 and 15-17 is/are allowed.
- 6) ☒ Claim(s) 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8-24-07;11-12-04;7-6-04</u> .                                 | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mieno et al (USP 4,819,602) in view of Sagisaka et al (USP 5,709,198).
3. With respect to claim 12, Mieno discloses a vehicle control system comprising an oxygen sensor having an oxygen pump cell 18, a oxygen partial-pressure detection cell 19, a control circuit (21, 22) connected to the sensor element via wiring lines and adapted to control the oxygen pump cell such that the output voltage of the oxygen partial-pressure detection cell is maintained at a predetermined value. See col. 4, ll. 9-30. Mieno further discloses a means for determining whether there is an anomaly both the oxygen partial pressure detection voltages ( $V_s$ ) and the oxygen pump cell currents ( $I_p$ ) based on whether the voltage and current measured at each of those signals are within particular ranges (e.g. whether  $V_s$  is between 0 or  $V_{cc}$ , or whether  $I_p = 0$ ,  $< I_{PLL}$  or  $> I_{PLH}$ ). The use of both signals representing current  $I_p$  and voltage  $V_s$  read on the defined first signal and the second signal of the claims. Moreover, because all this information must be stored by the electronic control unit for access for performing the flow chart of the fig. 4a, this reads on the defined storage means of the claims. Mieno further discloses an anomaly judgment means for determining a type and location of an anomaly based on levels of

the measurement signals and the stored relationship. See fig. 4a and col. 6, l. 66 through col. 8, l. 37. Mieno did not explicitly disclose the use of a third signal corresponding to a resistance of the oxygen partial-pressure detection cell. However, Sagisaka discloses that additional anomalies can be determined based on a signal corresponding to the resistance of the sensor. In particular, Sagisaka measures the resistance  $Z_{dc}$  for the sensor and compares the measured value to a predetermined range to determine if either a high temperature or low temperature anomaly has occurred. See fig. 8 and col. 9, l. 60 through col. 10, l. 22. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the additional anomaly detection of Sagisaka for the vehicle control system of Mieno in order to detect additional anomalies that might interfere with the sensor feedback control. With respect to the engine being controlled to a lean side, Mieno discloses no preference for whether the anomaly detection is to be performed during lean or rich engine conditions indicating that the engine could be controlled to be lean during the anomaly judgment means. Furthermore, Sagisaka teaches that the engine fuel should be cut prior to any determination of the resistance of the probe. See col. 9, ll. 38-40. This is presumably because air fuel control is not possible during the resistance determination as the sensor voltage must be altered from  $V_p$  to  $V_m$  (see fig. 6).

4. With respect to claim 13, Sagisaka teaches that a low or high temperature anomaly is determined based on the third signal (i.e. resistance). See fig. 8.

5. With respect to claim 14, a fuel cut as taught by Sagisaka would correspond to an ambient atmosphere.

***Allowable Subject Matter***

6. Claims 1-11 and 15-17 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:  
  
With respect to claims, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1, 9, or 15 with particular attention to the presence of an output means for through outputting the measurement signals when the modification or switching means outputs the first instruction signal and for outputting a selected measurement signal modified to have a level outside the corresponding range within which the level of the selected measurement signal varies in a normal state. Claims 2-8, 10, 11, 16, and 17 depend from these allowable claims and are also thereby allowable.

***Information Disclosure Statement***

8. On the IDS of 11/12/2004, the citation to JP 3-272,452 has been lined through to eliminate redundancy. Applicant already submitted this reference in the earlier 7/6/2004 IDS.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamada et al (USP 6,099,717) also discloses the use of a signal corresponding to the resistance of the sensor for the determination of an anomaly.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1795  
November 8, 2007



**KAJ K. OLSEN**  
**PRIMARY EXAMINER**